Rotor Position Phase-Locked Loop for Decoupled Control of DFIG for Wind Power Generation

Author: Mwinyiwiwa Bakari M.M., Zhang Y. ; Shen B. ; Ooi B. T.

Abstract

Implementation of decoupled *P*-*Q* control of doubly fed induction generators requires the positions of the rotors to be known. The rotor position phase-lock loop (PLL) is an invention that extracts rotor position and speed simultaneously by Â¿sensorlessÂ¿ means. The rotor position PLL is parameter-insensitive because, apart from an approximate value of the magnetization reactance, knowledge of the other parameters is not required for it to function. Experimental results obtained under noisy conditions demonstrate that it is also insensitive to noise.

Keywords: asynchronous generators; phase locked loops; power control; rotors; wind power; decoupled P-Q control